

NASA TECH BRIEF

Langley Research Center



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Improved General-Purpose Namelist Processor

The bulk of an improved general-purpose namelist processor is written in FORTRAN with minimal machine-dependent coding, thereby allowing easy conversion to various digital computers, such as the CDC 6000, the IBM 370, and the UNIVAC 1100-series computers and operating systems. It eliminates the 19 continuation-card limit of current namelist processors, which permits, essentially, an unlimited number of variables to be read in a single namelist declaration.

An improved printout-and-error diagnostic capability is contained in this namelist processor. For example, the input card images can optionally be printed, and comment cards can be inserted in the input deck or embedded directly on the data cards. The improved error diagnostic feature provides specific comments for detected input errors along with a pointer to the erroneous columns. All input errors can be located on a single pass. The namelist provides for Hollerith and octal inputs and also has a repeated specification capability for these types of inputs.

The namelist read package is mainly coded in FORTRAN for ease in maintenance and conversion. It employs a two-pass scanning technique to read namelists from an input card image file. The first pass scans the card image itself and processes all differentiated data from the card into fields. Data are differentiated by virtue of being alphanumeric, numeric, or other special forms, such as Hollerith. Each field is separated from the following field by a special character. The second pass scans the fields, inspecting the various forms of namelist data.

The interface between this namelist package and the standard FORTRAN namelist read statement is written in Assembler language. The FORTRAN-compiled calls to system routines, including the namelist processor (CDC INPUTN), use registers not accessible by the FORTRAN programmer. The read package also contains a few bit-manipulation routines, written in Assembler language, for reasons of speed and convenience.

A brief guide has been prepared and successfully implemented under two CDC compilers, RUN and FTN, to aid conversion to other compilers on other machines. It will aid debugging when unforeseen errors develop in the package. A list of all routines is presented as an attachment to this guide.

Note:

Requests for further information may be directed to:

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Patent status:

NASA has decided not to apply for a patent.

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